IN THE SPECIFICATION

Please amend the paragraphs of the specification as follows:

Please replace the first paragraph on page 4, commencing on line 6, with the following amended paragraph:

For simplicity, communication system 100 is shown to include one BS 104 and one MS 106; however, other variations and configurations of the communication system 100 are possible. For example, in a multi-user, multiple access communication system, a single BS may be used to concurrently transmit data to a number of mobile stations. In addition, in a manner similar to soft-handoff, disclosed in U.S. Patent ~~Serial~~ No. 5,101,501, entitled "SOFT HANDOFF IN A CDMA CELLULAR TELEPHONE SYSTEM," and U.S. Patent number 5,267,261, titled "Mobile Station Assisted Soft Handoff in a CDMA Cellular Communications ~~System",~~ System," assigned to the assignee of the present invention and incorporated by reference herein, a MS may concurrently receive transmissions from a number of base stations. The communication system of the embodiments described herein may include any number of base stations and mobile stations. Consequently, each of the multiple base stations is connected to BS controller (BSC) 102 through a backhaul similar to backhaul 110. The backhaul 110 can be implemented in a number of connection types including, e.g., a microwave or wire-line E1 or T1, or optical fiber. A connection 112 connects the wireless communication system 100 to a packet data serving node (PDSN), which is not shown.

Please replace the last paragraph on page 4, commencing on line 24, with the following amended paragraph:

In general, a communication link comprises a set of channels carrying logically distinct types of information. These channels may be transmitted according to a scheme of time division multiplexing (TDM), code division multiplexing (CDM), frequency division multiplexing (FDM), or a combination thereof. In a TDM scheme, the channels are distinguished in time domain, where the channels are transmitted one at a time. In a CDM scheme, the channels may

be distinguished by a pseudorandom orthogonal sequence. A code division communication system is disclosed in U.S. Patent ~~Serial~~ No. 5,103,459, entitled "~~SYSTEM AND~~ METHOD AND APPARATUS FOR ~~GENERATING SIGNAL WAVEFORMS IN A CDMA CELLULAR TELEPHONE SYSTEM~~ HIGH RATE PACKET DATA TRANSMISSION" assigned to the assignee of the present invention and incorporated by reference herein.

Please replace the last paragraph on page 5, commencing on line 16, with the following amended paragraph:

In an exemplary embodiment, each MS monitors at least signal quality metric of signals received from BSs. An MS (for example MS 106) receiving forward link signals from multiple BSs identifies the BS associated with the highest quality forward link signal (for example BS 104). MS 106 then generates a prediction of a data rate at which the packet error rate (PER) of data packets received from the selected BS 104 will not exceed a target PER. A target PER of approximately 2% may be used. MS 106 then computes a rate at which a "tail probability" is greater than or equal to the target PER. The tail probability is the probability that the actual signal quality during the packet transmission period is less than the signal quality required for successful decoding of a packet correctly at a given rate. MS 106 then sends a message on the reverse link 108b specifically to the selected BS 104, requesting the data rate at which the specific selected BS may transmit forward link data to the MS 104. The message may be sent on a data rate control channel (DRC). The use of DRC is disclosed in a ~~co-pending~~ application serial number 08/963,386 entitled: "A METHOD AND AN APPARATUS FOR HIGH RATE DATA TRANSMISSION," now U.S. Patent No. 6,574,211, issued June 3, 2003 to Padovani et al., assigned to the assignee of the present invention, and incorporated by reference herein. A dedicated reverse link medium access channel (R-MACCH) may be utilized for carrying the DRC information, a reverse rate indicator (RRI), and selective acknowledgement (SA) information.

Please replace the first paragraph on page 6, commencing on line 4, with the following amended paragraph:

BS 104 may monitor the reverse channel from one or more MSs and may transmit data on the forward link 108a to no more than one destination MS during each forward link transmit time slot. In one ~~embodiement~~ <u>embodiment</u>, BS 104 selects a destination MS (for example MS 106) based on a scheduling procedure designed to balance the grade of service (GoS) requirements of each MS with the desire to maximize throughput of the system 100. BS 104 transmits data to MS 106 only at the rate indicated by the most recent DRC message received from the destination MS 106. This restriction makes it unnecessary for MS 106 to perform rate detection on the forward link signal. MS 106 determines whether it is the intended destination MS during a given time slot.

Please replace the last paragraph on page 7, commencing on line 19, with the following amended paragraph:

FIG. 2 shows the forward link signal structure transmitted by each BS in an exemplary high data rate system in accordance with a particular ~~embodiement~~ <u>embodiment</u>. Forward link signals are divided into fixed-duration time slots. Each time slot is 1.67 milliseconds long. Each slot 202 is divided into two half-slots [[204]] <u>204A and 204B</u>, with a pilot burst [[208]] <u>208A or 208B</u> transmitted within each half-slot [[204]] <u>204A or 204B</u>. In an exemplary embodiment, each slot is 2048 chips long, corresponding to a 1.67 millisecond slot duration. In an exemplary embodiment, each pilot burst [[208]] <u>208A or 208B</u> is 96 chips long, and is centered at the mid-point of its associated half-slot [[204]] <u>204A or 204B</u>. A reverse link power control (RPC) signal [[206]] <u>206A or 206B</u> is transmitted on both sides of the pilot burst 208b in every second half-slot [[204b]] <u>204B</u>. The RPC signal may be transmitted for 64 chips immediately before and 64 chips immediately after the second pilot burst [[208b]] <u>208B</u> to regulate the power of the reverse link signals. Forward link traffic channel data is sent in the remaining portions [[210]] <u>210A and 210B</u> of the first half-slot [[204a]] <u>204A</u> and the remaining portions ~~212of~~ <u>212A and 212B of</u> the second half-slot [[204b]] 204B. Preamble 214 is 64 chips long and is transmitted once for each data packet. The preamble 214 is MS specific because the traffic channel stream is intended for a particular MS. Since each data packet is divided into multiple data units, and each unit is transmitted during a slot time, the first time slot contains the preamble 214 identifying the destination MS for receiving the data stream in the first and subsequent time slots.

Please replace the first paragraph on page 9, commencing on line 10, with the following amended paragraph:

FIG. 4 is an exemplary flowchart of a method for an MS to use QARQ to generate a response to a BS in accordance with one ~~embodiement~~ embodiment. At step 400, the MS receives a data unit of a data packet from the BS. At step 402, the preamble of the packet is extracted and evaluated. The preamble is compared with a reference preamble at step 404. The packet is discarded at a step 406 if the preamble indicates that the packet is intended for another MS, and the flow returns to step 400 to wait for another packet, or in the alternative, the packet may be retained for soft combining with retransmissions of the same packet. If the preamble indicates that the packet is intended for the MS, the MS decodes the packet at step 408 and evaluates a quality metric of the received packet.

Please replace the first paragraph on page 10, commencing on line 3, with the following amended paragraph:

If the RLP sequence number indicates contiguity, it means that all the payload units of the packet transmitted to the MS were properly received. Consequently, all the payload units with contiguous sequence numbers contained in the buffer are provided to an RLP layer at step [[420]] 424. If the RLP sequence number indicates non-contiguity, the timer corresponding to the last NAK sent (which was started at step 414) is checked at step 422. If the timer has not expired, the MS waits for retransmission of the missing payload units or expiration of the timer for the last NAK sent.

Please replace the last paragraph on page 10, commencing on line 27, with the following amended paragraph:

FIG. 5 shows an exemplary detailed block diagram of the communication system 100 of FIG. 1 in accordance with an ~~embodiement~~ embodiment. Data to be delivered to MS 106 arrive at BSC 102 through connection 112 from the PDSN (not shown). The data is formatted into payload units under the control of a RLP processor 504. RLP processor 504 also supplies a distributor 502 with information as to which packets have been requested for retransmission.

The retransmission request is delivered to the RLP processor 504 through the RLP message. Distributor 502 distributes payload units through a backhaul to BS 104, which serves the MS (MS 106 in this example) for which the data is intended.

Please replace the last paragraph on page 11, commencing on line 18, with the following amended paragraph:

The packets arriving at MS 106 over the forward link 108a are provided to a preamble detector 520, which detects and decodes a preamble of the packets. The preamble is provided to a processor 521, which compares the decoded preamble to a reference preamble. The packet is discarded if the preamble indicates that the packet is intended for another MS. Otherwise, the packet is provided to a decoder 522, which decodes the packet. The decoded packet is provided to [[a]] the processor 521, which also evaluates a quality metric of the packet. The evaluated quality metric and the quality metric contained in the received packet are compared, and based on the comparison an SA generator [[526]] 524 generates an appropriate SA. Preamble detector 520, decoder 522, and processor 521 are shown as separate elements. However, one skilled in the art will appreciate that the physical distinction is made for explanatory purposes. Preamble detector 520, decoder 522, and processor 521 may be incorporated into a single processor accomplishing all the processing functions. Moreover, transmission and reception of forward and reverse link signals involve other functions such as data channel generation and RF/IF units that are not shown for simplicity. One skilled in the art appreciates that such functions in various configurations are possible, and often necessary, for proper transmission and reception of forward and reverse link signals.

Please replace the second paragraph on page 12, commencing on line 15, with the following amended paragraph:

If a packet was correctly decoded, the payload unit(s) contained in the packet are stored in a buffer 528. The RLP sequence number of the payload unit(s) contained in the packet is checked by the decoder 522 against an expected value of the RLP sequence number. If the RLP sequence number indicates contiguity, all the payload units with contiguous sequence numbers contained in the buffer 528 are provided to a RLP processor [[532]] 526. Otherwise, the timer

530, corresponding to the last NAK sent, is checked. If the time has not expired, the payload units are stored in the buffer 528, and the MS 106 waits for retransmission of the missing payload units or expiration of the timer 530 for the last NAK sent. If the timer 530 for a particular NAK for a particular set of missing payload units has expired, all payload units in the buffer 528 with sequence number higher than the missing units associated with the particular NAK and lower than the missing units associated with the next NAK, if any, are provided to RLP processor 526.

Please replace the last paragraph on page 12, commencing on line 29, with the following amended paragraph:

The RLP processor 526 checks the sequence numbers of the delivered payload units. If the sequence number indicates contiguity, the RLP processor 526 delivers data from the buffer 528 to the data sink 534. Otherwise, the RLP processor 526 instructs RLP message generator 532 to generate an RLP message requesting retransmission of the missing units. In one embodiment, the RLP message requests retransmission of all of the missing units in the buffer 528. In another embodiment, the message requests retransmission of only the latest detected missing payload units. The message is then transmitted over the reverse link [[108b]] <u>108B</u> to BS 104.

Please replace the first paragraph on page 13, commencing on line 6, with the following amended paragraph:

The data containing the SA and arriving at the BS 104 over the reverse link is provided to a SA detector 514 and an RLP message detector 516. If the received data contains an ACK, which is detected in SA detector 514, the QARQ controller 518 removes the packet associated with the ACK from the queues 508 and 510. If a NAK is received, the QARQ controller 518 checks whether parameters controlling retransmission were exceeded. In an exemplary embodiment, the parameters include the maximum number of times a packet can be retransmitted and the maximum time for which a packet can remain in the first-time queue 508 after the packet has been transmitted. If the parameters were exceeded, the QARQ controller 518 removes the packet [[form]] <u>from</u> the queues 508 and 510. Otherwise, the QARQ controller 518 instructs the

scheduler 512 that the packet be rescheduled for transmission with higher priority. The packet is moved from the first-time queue 508 to the retransmission queue 510 if the QARQ controller 518 determines that the non-acknowledged packet resides in the first time queue 508.

Please replace the last paragraph on page 13, commencing on line 26, with the following amended paragraph:

FIG. 6 illustrates a timing relationship between a packet received at MS 106 and an SA transmitted from MS 106. In slots n-4 or n-3, MS 106 receives a packet over the forward channel link [[108]] 108A, and determines if the packet was intended for MS 106. The MS 106 discards the packet if the packet was not intended for the MS 106. Otherwise, the MS 106 decodes the packet, evaluates a quality metric of the packet, and compares the evaluated quality metric with the quality metric contained in the packet in slots n-2 and n-1. In slot n, MS 106 sends an SA back to BS 104 over the reverse channel link [[108b]] 108B. In slot n+1, the SA received at BS 104 is decoded and provided to a QARQ controller. In slots n+2, n+3, BS 104 retransmits the packet if so requested. The position of the slots on the received forward link channel [[108a]] 108A and the reverse link channel [[108b]] 108B is synchronized at MS 106. Therefore, the relative position of slots on the forward channel link [[108a]] 108A and the reverse channel link [[108b]] 108B is fixed. BS 104 can measure a round trip delay between BS 104 and MS 106. Consequently, the time slot in which the SA must arrive at the BS 104 can be ascertained.

Please replace the second paragraph on page 15, commencing on line 8, with the following amended paragraph:

Referring to Fig. 4 again, at steps 412 and 416, an SA generator generates either an ACK or NAK message for transmission to the BS based on the comparison of the metrics made at block 410. Generating either NAK or ACK at respectively steps 412 and 416 depends on whether at step 402 the MS has detected a preamble matching a preamble assigned to the MS. A packet of data may be divided into several units. Each unit is transmitted during a slot time. Each unit of data has a sequence number. The first data unit is transmitted with a preamble. The mobile unit must first detect and match the preamble before deciding whether to decode the data.

Data units subsequent to the first data unit may not have the preamble. The mobile unit keeps track of the data unit sequence numbers [[unit]] until all data units have been received. If a data unit is received and decoded without passing the metric at step 410, the mobile unit sends a NAK message to the BS for retransmission of the failed data unit. If the data unit passes the metric, the MS sends an ACK message at step 416 to the BS.

Please replace the first paragraph on page 16, commencing on line 12, with the following amended paragraph:

Referring to Fig. 7 again, the exemplary reverse link architecture in accordance with an ~~embodiement~~ embodiment includes ~~a reverse channel~~ an ACK/NAK reverse channel which is gated at a gate block 699. The gating control is generated by step 404. The gating control allows transmission of the ACK/NAK reverse channel when the preamble of the first data unit of a data packet has matched at the MS. The ACK/NAK message transmitted on the ACK/NAK reverse channel may be limited to a single data bit or symbol. The ACK/NAK message passes and repeats through a BPSK modulator shown at blocks 698 and 697. The BPSK-modulated ACK/NAK message is Walsh covered at block 696. The Walsh covered signal passes through a gain block 695 before being summed at a summer 694 with signals from the DRC and pilot channels. The ACK/NAK message, DRC message, and pilot data are provided to multipliers 650a and 650c, which spread the data with the PN_I and PN_Q signals, respectively. Thus, the ACK/NAK, DRC messages, and pilot are transmitted on both the inphase and quadrature phase of the sinusoid.

Please replace the last paragraph on page 16, commencing on line 27, with the following amended paragraph:

Input data of the traffic channel is encoded in an encoder 612 and block interleaved in a block 614 before Walsh covered in a multiplier 616. A gain element 618 adjusts the gain of the traffic channel. The result passes through multipliers [[650b]]650B and [[650d]]650D for channel spreading. The DRC message is encoded in a DRC encoder block 626. A ~~Wlash~~ Walsh generator 624 generates the Walsh functions for Walsh covering the encoded DRC message in a multiplier 628. Walsh covered DRC message and pilot data are multiplexed in a MUX block

630. The results are summed in summer 694 with the gated NAK/ACK channel. The results of the summer 694 are channel spread in multipliers [[650a]]650A and [[650c]]650C. Code generators 642 and 644 generate long and short codes. The codes are muliplied in multipliers ~~646a and 646b~~ 646A and 646B to generate PN-I and PN-Q. A block 640 may provide the timing and control functions. The PN-I and PN-Q are used for channel spreading performed by multiplers ~~650a-d~~ 650A-650D. The results of multipliers ~~650a-d~~ 650A-650D passed through filters ~~652a-d~~ 652A-562D. The outputs of filters ~~652a and 652b~~ 652A and 652B are summed in a summer [[654a]]654A to generate I-channel, and outputs of filters ~~652c and 652d~~ 652C and 652D are summed in a summer [[654b]]654B to generate the Q-channel.